

WHAT IS CLAIMED IS:

1. An over-the-needle catheter assembly comprising a catheter of unitary construction made of soft material having a lumen therethrough, said catheter material having a hardness in the range of 50 to 90 on the Shore A durometer scale, said catheter having a distal end integral with said catheter that serves as the leading end when inserted into the patient, said distal end being stiffer than the remaining portion of said catheter so as to facilitate insertion of said catheter into the patient.

2. The catheter assembly of Claim 1, wherein said distal end of said catheter has been treated to a hardness that is above about 90 on the Shore A scale.

3. The catheter assembly of Claim 1, wherein said distal end of said catheter has been chemically treated with a hard thermoplastic material.

4. The catheter assembly of Claim 1, wherein said distal end of said catheter has been treated by radiation.

5. The catheter assembly of Claim 1, further comprising an insert that is configured to be securably positioned within said distal end of said catheter to effectively stiffen said distal end of said catheter.

6. The catheter assembly of Claim 1, further comprising abutment means to enhance insertion of said catheter into the patient.

7. The catheter assembly of Claim 6, wherein said abutment means comprises an interior abutment spaced at a distance from said distal end of said catheter, said abutment defining a transition in the internal diameter of a lumen through said catheter.

8. The catheter assembly of Claim 7, further comprising an insertion needle for inserting said catheter into a patient, wherein said abutment means further comprises an abutment on said insertion needle that is complimentary with said abutment on said catheter.

9. The catheter assembly of Claim 8, wherein said catheter further comprises an interior shoulder and said insertion needle further comprises a collar secured to the exterior thereof, said shoulder and collar configured to abut when said insertion needle is directed through said lumen within said catheter.

10. The catheter assembly of Claim 1, further comprising a metal ring configured to be secured within a lumen of said catheter to permit tracking of said catheter during advancement through the patient's vascular system.

11. The catheter assembly of Claim 1, further comprising a guard that covers the tip of a needle when said needle is withdrawn from said catheter to protect against human contact with the needle tip.

12. A method of using an insertion needle to insert a soft material catheter into a patient comprising the steps of:

providing a catheter assembly including a catheter and an insertion needle where said catheter comprises a unitary length of soft material having a lumen extending therethrough, said catheter material having a hardness in the range of 50 to 90 on the Shore A durometer scale,

treating a an integral distal end of said catheter to stiffen the material at said distal end so that it resists the tendency of a patient's skin and vascular system to move said catheter proximally,

introducing an insertion needle through said lumen of said catheter to assist in inserting said catheter,

inserting said catheter assembly into the patient's vascular system, and

withdrawing said needle from said catheter to permit connection of a proximal end of said catheter to a tube for fluid communication therewith.

13. The method of Claim 12, further comprising the step of providing an abutment means for distal engagement between said catheter and said insertion needle, wherein said abutment means permits the transfer of at least some insertion forces from said insertion needle to said catheter to enhance effective advancement of said catheter into the patient.

14. The method of Claim 13, wherein said abutment means comprises an internal abutment in said lumen of said catheter spaced at a distance from said distal end of said catheter, said abutment defining a transition in the diameter of said lumen.

15. The method of Claim 14, wherein said abutment further comprises an abutment on the exterior of said insertion needle configured to abut the abutment of said catheter during the step of inserting the catheter assembly into the patient.

16. The method of Claim 12, further comprising the step of providing a guard that covers a tip of said needle when said needle is withdrawn from said catheter to protect against human contact with said needle tip.

17. The method of Claim 12, wherein the step of treating a distal end of said catheter comprises inserting a hard material insert into said distal end.

18. The method of Claim 12, wherein the step of treating a distal end of said catheter comprises chemically adding a hard thermoplastic material to said catheter to result in a hardness of at least 90 on the Shore A scale.

19. The method of Claim 12, wherein the step of treating a distal end of said catheter comprises chemically treating the distal end of said catheter.

20. A catheter for insertion into the vascular system of a patient, said catheter having a proximal end and a distal end, said catheter comprising a unitary material and of unitary construction, wherein said integral distal end of said catheter is treated such that said distal end of said catheter is harder than said proximal end of said catheter.